



## TECHNICAL DATA

## VK-200™ EXTINGUISHING AGENT ASSEMBLIES

The technical data described herein is for components of the Viking VK-200™. For design, installation, and operation instructions, refer to the latest edition of VK-200™ original source documents: Installation and Service Manual (Part No. 17213), Design Manual (Part No. 17211), and Operation Manual (Part No. 17212).

The Viking Corporation, 210 N Industrial Park Drive, Hastings MI 49058

Telephone: 269-945-9501 Technical Services: 877-384-5464 Fax: 269-818-1680 Email: techsvcs@vikingcorp.com

### 1. DESCRIPTION

The Viking VK-200™ Fire Extinguishing System uses Dupont™ FM-200® extinguishing fluid that is stored in the system's extinguishing agent container(s) until system activation. The container assembly includes a welded steel cylinder filled with FM-200® fluid, assembled with the following components:

- Cylinder valve with burst disc, contact pressure gauge with pressure switch, protective neck ring, protective cylinder cap and valve cap.
- Three cylinder sizes are available: 130, 270, and 370 lbs. (52, 106, and 147 l).
- Cylinders are designed, manufactured, and labeled in accordance with the US Dept. of Transportation Standard DOT 4BW-500.
- Cylinders can only be installed in the upright position.
- To create the pressure necessary for the agent to be released, the extinguishing agent container is superpressurized with nitrogen at a pressure of 360 psi (25 bar).
- The fire extinguishing agent concentration to be used depends on the fire load expected in these areas.

Each cylinder is equipped with a special high-speed opening cylinder valve:

- Operates according to the differential pressure principle and has a piston and a brass housing.
- Includes a burst disc to protect from excessive pressure.
- Includes a contact pressure gauge for the indication and the monitoring of the filling pressure.
- A pressure switch that changes the state of an electrical dry contact during release is included with the gauge.
- The valve is appropriate for high discharge rates and makes the extinguishant discharge possible within 10 seconds.
- Available in the nominal sizes 1-1/2 inch for the 130 lb. cylinder, and 2 inch for 270 lb. and 370 lb. cylinders.

An optional manual release assembly with pipeline limit switch (pressure switch) can be ordered separately for installation in the piping:

- The pipeline limit switch is required with manual release installation per NFPA 2001.
- The status of the pressure switch can be monitored by the fire agent release control panel.

A cylinder nameplate label is attached to the extinguishing agent container:

- Contains maintenance and filling information, as well as information about the filling quantity.
- A UL Listing label and FM Approval label are also attached to the cylinder.

Protective caps are used to protect sensitive components (e.g. valves) of the extinguishing agent containers:

- Protects the valves from damage during transport.

**NOTE:** The protective valve caps must be attached before each transport.

An installation clamp is required to be ordered with each container assembly (available separately):

- The cylinder must be attached to a wall using the designated installation clamp.

**NOTE:** System detection is controlled by an approved system release control panel with compatible detection.

### 2. LISTINGS AND APPROVALS



**UL Listed:** Clean Agent Extinguishing System Unit



**FM Approved:** Clean Agent Fire Extinguishing System

### 3. TECHNICAL DATA

- Available since 2011.
- Minimum and Maximum Agent Storage Temperatures: 0 °F to 122 °F (-18 °C to 50 °C)
- Minimum and Maximum Temperatures of Protected Spaces per UL and FM: 60 °F to 80 °F (15.6 °C to 26.7 °C)

#### Cylinder Specifications

- Fill Density: Min. 31.2 lb/ft<sup>3</sup> (500 kg/m<sup>3</sup>), Max. 71.1 lb/ft<sup>3</sup> (1140 kg/m<sup>3</sup>) at 69.8 °F (21 °C)

**NOTE:** The accurate filling quantity depends on the necessary extinguishant quantity and the layout of the piping.



Viking Technical Data may be found on  
The Viking Corporation's Web site at  
<http://www.vikinggroupinc.com>.  
The Web site may include a more recent  
edition of this Technical Data Page.



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### Valve Specifications

- Working Pressure: 360 psi (25 bar) at 70 °F (21 °C)
- Max. Working Pressure: 508 psi (35 bar) at 122 °F (50 °C)
- Response Pressure at Bursting Disc: 725 psi +/- 73 psi (50 bar +/- 5 bar) at 68 °F (20 °C)

### Gauge Specifications

- Contact Types:
  - Standard setting is normally open (NO)
  - Can be specified and ordered as normally closed (NC)
- Switching Point: 324 psi (22.3 bar) +/- 19 psi (1.31 bar)
- Agent: HFC-227ea
- Maximum Pressure: 725 psi (50 bar)
- Indicating Range: 0 to 870 psi (60 bar)
- Gauge Nominal Size: 2" (50 mm)
- Accuracy Class: 1.6

**TABLE 1: NOMINAL FILL WEIGHTS HFC-227e**

Cylinder Size Nominal Fill Size	HFC-227ea Minimum Fill	HFC-227ea Maximum
130 lb. (52 l)	44 lb.	132 lb.
270 lb. (106 l)	88 lb.	165 lb.
370 lb. (147 l)	123 lb.	370 lb.

### Material Standards

Cylinder: Welded Steel, Powder Coated Red, DOT Standard 4WB-500

Protective Neck Ring: AISI 1015 Hot Rolled Steel, Powder Coated Black

Cylinder Valve:

- Housing, Adapter, Screws: Brass
- Spindles, Seal Retainer: Brass
- O-ring/Seal of Seat: NBR
- Bursting Disk: Nickel
- Spring: Steel

Gauge: Aluminum

- Measuring Network: Copper Alloy
- Contact Material: Gold-plated

Protective Cylinder Cap: AISI 1026, Hot Rolled Steel, Powder Coated Black

Installation Clamp: Steel

### Ordering Information

The cylinders are filled according to the ordering designations. Extinguishant cylinders are completely assembled and filled, consisting of a steel cylinder, neck ring, protective cap, cylinder valve with burst disc, contact pressure gauge with pressure switch, and cylinder nameplate label. For a complete Single Container System, the following must be ordered separately: release devices, optional manual release assembly with pipeline limit switch (pressure switch), discharge nozzles, hose and NPT connections, installation clamp, and warning signs (refer to Tables 4a and 4b). An approved release control panel with compatible detection system is also required. NOTE: For a complete Multi Container System, order the above items, plus additional items indicated in Table 4a on page 200e and Figure 4 on page 200f.

To order the Viking VK-200™ Extinguishing Agent Single Container Assemblies, refer to the following part numbers:

- 130 lb. (52 l) container assembly: 16529
- 270 lb. (106 l) container assembly: 16533
- 370 lb. (147 l) container assembly: 16537

**NOTE:** When ordering one of the above assemblies, the agent weight (3 digits) is added as a suffix to the assembly number. All assemblies will be shipped with a normally open (NO) pressure switch as standard. If a normally closed pressure switch is desired, then the code "NC" will follow the agent weight in the suffix.

*Example:* A 130 lb. (52 l) cylinder with 62 lb of agent and a standard NO pressure switch = Part No. 16529-062.

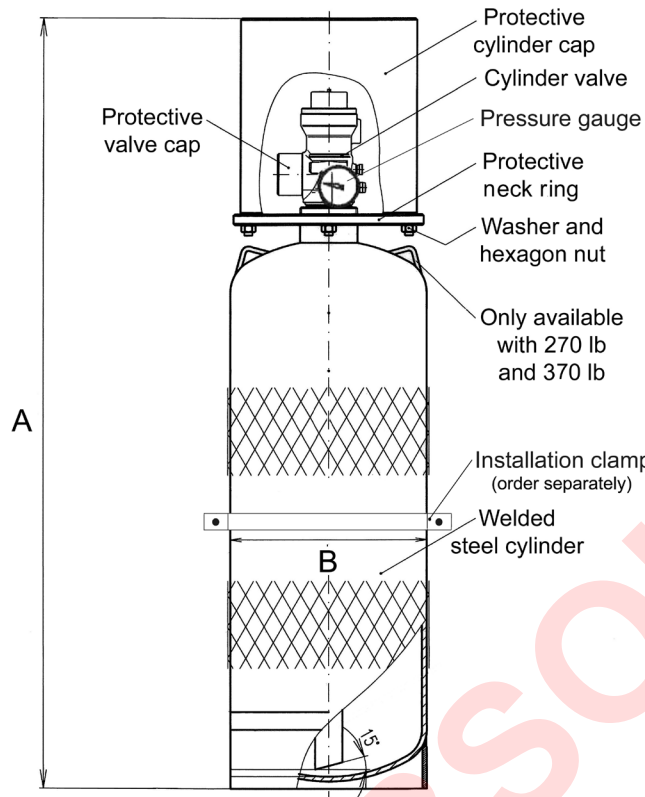


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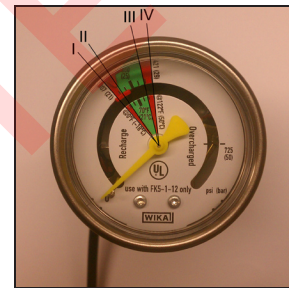
**Figure 1: Container Assembly Components and Dimensions (Single Container Assembly Shown)**

**TABLE 2: CONTAINER ASSEMBLY DIMENSIONS**

Cylinder Size	A	B
	Inches (mm)	Inches (mm)
130 lb. (52 l)	56-1/2 (1,435)	10 (254)
270 lb. (106 l)	49 (1,240)	16 (407)
370 lb. (147 l)	62 (1,575)	16 (407)

\* Standard dimension

Note: All dimensions are approximate. Deviations in dimensions can result due to the tolerances.



**Figure 2: Contact Pressure Gauge Markings**

### Gauge Indicating Range:

- I. Pressure at minimum temperature 0 °F (-18 °C)
- II-III. Pressure from 90% to 110% from charging pressure (below 307 psi (21 bar) and above 421 psi (29 bar) at 70 °F (21 °C)
- IV. Pressure at max. temperature 122 °F (50 °C)

### Gauge Color Marked:

- 0 to I.....Recharge
- I to II.....Red
- II to III.....Green
- III to IV.....Red
- IV to max....Overcharge

## 4. INSTALLATION, SERVICE, AND MAINTENANCE



The VK-200™ Fire Extinguishing System must be installed, serviced, and maintained in accordance with the Installation and Service Manual, Design Manual, and Operation Manual (part numbers 17213, 17211, and 17212) and NFPA 2001: Standard on Clean Agent Fire Extinguishing Systems and applicable NFPA standards. In addition, the Authority Having Jurisdiction may have additional maintenance, testing and inspection requirements that must be followed.

**Failure to follow these instructions could cause improper system operation, resulting in serious personal injury and/or property damage.**

**NOTICE:** The building owner is responsible for maintaining the fire extinguishing system and devices in proper operating condition. Any system maintenance or testing that involves placing a detection system out of service may eliminate the fire protection of that system. Prior to proceeding, notify all Authorities Having Jurisdiction. Consideration should be given to employment of a fire patrol in the affected area.

## 5. OPERATION

Refer to the VK-200™ Fire Extinguishing System Operation Manual.

## 6. AVAILABILITY

VK-200™ Fire Extinguishing System Container Assemblies are available through a network of domestic and international distributors. See The Viking Corporation web site for the closest distributor or contact The Viking Corporation.

## 7. GUARANTEE

For details of warranty, refer to Viking's current list price schedule or contact Viking directly.



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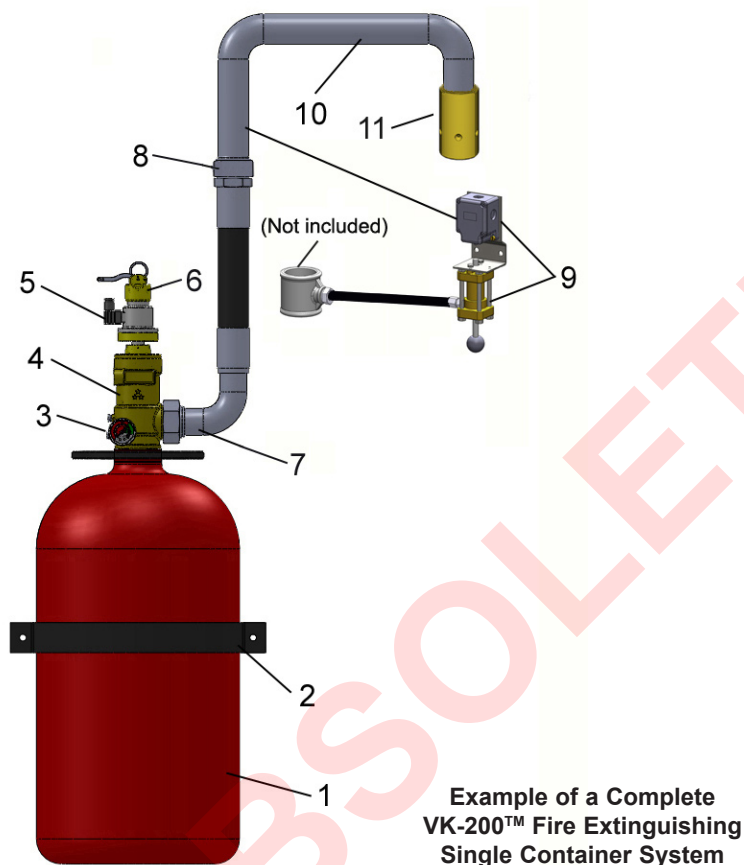


Figure 3

**TABLE 3: SYSTEM COMPONENTS FOR A COMPLETE VK-200™  
SINGLE CONTAINER SYSTEM WITH ELECTRIC RELEASE DEVICE**

Item No.	Description
1	Extinguishing Agent Container
2	Installation Clamp**
3	Contact Pressure Gauge with Pressure Switch
4	Cylinder Valve with Burst Disc
5	Release Device, Electric**
6	Release Device, Manual (optional, also see Item 9)**
7	Hose (90° Shown)**
8	NPT Connection**
9	Pipeline Limit Pressure Switch (optional)**†
10	Pipeline**
11	Discharge Nozzle**

\*\*Ordered separately. Refer to Tables 4a and 4b.

† Required if manual release device is installed (available as part of the manual release assembly).

**NOTE:** Additional components are required for a Multi Container System. Refer to Table 4a on page 200e and Figure 4 on page 200f.



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**TABLE 4a: ORDERING SYSTEM COMPONENTS  
FOR A COMPLETE VK-200™ CONTAINER SYSTEM**

Description		Part No.	Data Page
Extinguishing Agent Container Assembly			
130 lb. (52 l) container assembly		16529	200a-f
270 lb. (106 l) container assembly		16533	
370 lb. (147 l) container assembly		16537	
Installation Clamp (130 lb. cylinder)		17157	
Installation Clamp (270 and 370 lb. cylinders)		17161	
<b>NOTE:</b> When ordering one of the above assemblies, the agent weight (3 digits) is added as a suffix to the assembly number. All assemblies will be shipped with a normally open (NO) pressure switch as standard. If a normally closed switch is desired, then the code "NC" will follow the agent weight in the suffix. <i>Example:</i> A 130 lb. (52 l) cylinder with 62 lb of agent and a NO pressure switch = Part No. 16529-062.			
Release Devices			
Electric Release Device (includes Reset Tool)		16360	<a href="#">102a-c</a>
Reset Tool for Electric Release Device (Replacement)		17096	
Manual Release Assembly (optional) (includes Manual Release Device, Pipeline Limit Pressure Switch, 39" hose, and adapters)		17551	<a href="#">102e-f</a>
Pipeline Limit Pressure Switch (Replacement)		17103	
Adapter, 1/4" NPT to M12 x 1.5 Hose (Replacement)		17552	<a href="#">102e-f</a>
Adapter, Pressure Switch G 1/4 to M12 x 1.5 Hose (Replacement)		17553	
NOTE: For replacement hose, refer to pilot line hose part numbers indicated below.			
Additional Components Needed for Multi Container Systems (also refer to Figure 4 on page 200f)			
Pneumatic Release Device		17197	<a href="#">102a-c</a>
Check Valve		17153	<a href="#">104a-c</a>
ISO-NPT Check Valve Adapter		17154	<a href="#">104a-c</a>
Pilot Line Hoses	23" (600 mm) long	16376	<a href="#">104a-c</a>
	39" (1,000 mm) long	16377	
	59" (1,500 mm) long	16378	
Pilot Line Adapter		17155	<a href="#">104a-c</a>
Pilot Line Safety Valve		17156	<a href="#">104a-c</a>
Warning Signs			
Outside Warning Sign		17436	<a href="#">107a-b</a>
Inside Warning Sign		17435	

**TABLE 4b: ORDERING SYSTEM COMPONENTS  
FOR A COMPLETE VK-200™ CONTAINER SYSTEM**

Description		Part No.	Description		Part No.	Data Page	
Straight Hose			Hose to NPT Connections			104a-c	
1-7/8" UN x 1-1/2" ISO		16379	1-1/2" ISO x 1-1/2" NPT		17100		
2-1/2" UN x 2" ISO		16381	2" ISO x 2" NPT		17099		
90° Hose			Valve to NPT Connections				
1-7/8" UN x 1-1/2" ISO		16380	1-7/8" UN x 1-1/2" NPT		17102		
2-1/2" UN x 2" ISO		16382	2-1/2" UN x 2" NPT		17101		
Discharge Nozzles (180° Spray Angle, 3 Orifices)							
Thread Size		Min. Orifice Diameter		Max. Orifice Diameter		Part No.	Data Page
1/2" NPT		0.118"	3 mm	0.236"	6 mm	17162	205a-b
1" NPT		0.118"	3 mm	0.433"	11 mm	17163	
1-1/2" NPT		0.118"	3 mm	0.709"	18 mm	17164	
Discharge Nozzles (360° Spray Angle, 4 Orifices)							
1/2" NPT		0.118"	3 mm	0.197"	5 mm	17165	205a-b
1" NPT		0.118"	3 mm	0.394"	10 mm	17166	
1-1/2" NPT		0.118"	3 mm	0.630"	16 mm	17167	
Adj. Spanner Wrench for Nozzle Installation (optional)						18038	205a-b
<b>NOTE:</b> Orifice diameter gradations are in 0.001 inch increments. The nozzle base part number is followed by a three-digit number that refers to the orifice diameter. <i>Example:</i> A 1/2" NPT nozzle with a 180° pattern, and an orifice diameter of 0.220" = Part No. 17162-220.							





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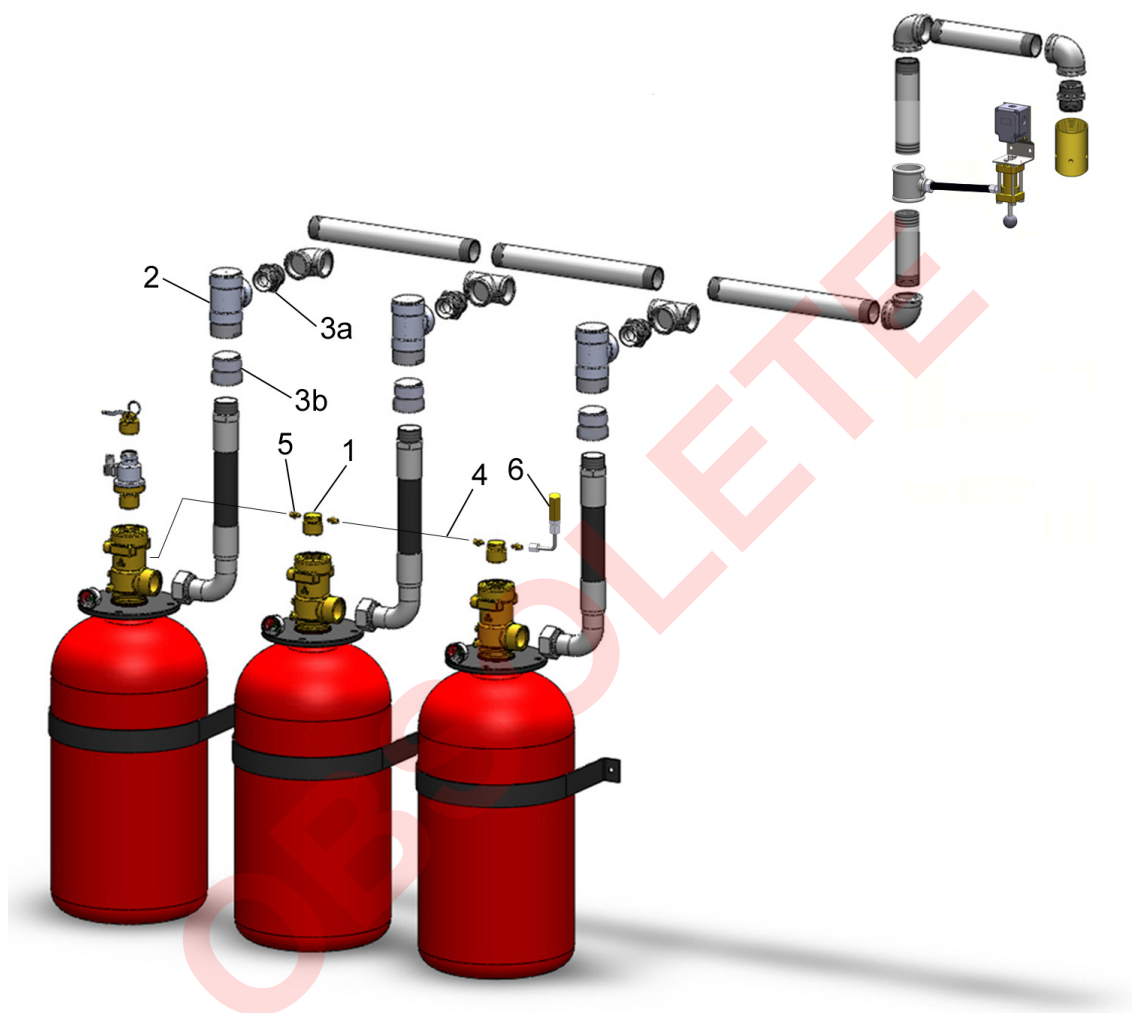


Figure 4: Example of a Complete VK-200™ Fire Extinguishing Multi Container System

TABLE 5: ADDITIONAL SYSTEM COMPONENTS REQUIRED  
FOR A VK-200™ MULTI CONTAINER SYSTEM\*\*\*

Item No.	Description
1	Pneumatic Release Device
2	Check Valve
3a and 3b††	ISO-NPT Check Valve Adapter
4	Pilot Line
5	Pilot Line Adapter (one required for connecting each pilot line end and for connecting each pilot line safety valve)
6	Pilot Line Safety Valve

\*\*\*Components required in addition to the items indicated in Figure 3 for a Single Container System. Refer to Table 4a on page 200e.

†† Item 3b is needed only if connecting to NPT threaded pipe or hose.